JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS
VOLUME 35, 26 JUNE 1991

Proceedings of the 4th International
Congress on Computational
and Applied Mathematics
July 23–28, 1990, Leuven, Belgium

CONTENTS

Preface 1

INVITED PAPERS

E. Miersemann and H.D. Mittelmann
Stability and continuation of solutions to obstacle problems 5

M. Sugihara, Y. Oyanagi, M. Mori and S. Fujino
On the efficiency of a SOR-like method suited to vector processors 33

J. Wimp
Current trends in asymptotics: some problems and some solutions 53

CONTRIBUTED PAPERS

M.B. Abd-el-Malek
Approximate solution of gravity-affected flow from planar sluice gate at high Froude number 83

N. Arai, S. Sakaguchi, Y. Wada and S. Ogawa
Numerical investigation of separated flow around a bent-nose biconic 99

M. Beckers and A. Haegemans
The construction of three-dimensional invariant cubature formulae 109

J. Berntsen, T.O. Espelid and T. Sørevik
On the subdivision strategy in adaptive quadrature algorithms 119

A. Boutayeb and E.H. Twizell
Finite-difference methods for twelfth-order boundary-value problems 133

M. Chettab and M.-S. Lubuma
Coefficients of singularities and mixed methods for the mixed Dirichlet–Neumann problem for the Stokes operator on a polygon 139

E. Dick
Second-order formulation of a multigrid method for steady Euler equations through defect-correction 159

H. Fischer
Automatic differentiation of the vector that solves a parametric linear system 169

J.A. Ford and R.-A. Ghandhari
On the use of curvature estimates in quasi-Newton methods 185

J.A. Ford and A.F. Saadallah
On the conditioning of the Hessian approximation in quasi-Newton methods 197

A. Galperin and Z. Waksman
Newton's method under a weak smoothness assumption 207

S. González-Pinto, L. Casasús and P. González-Vera
A numerical scheme to approximate the solution of a singularly perturbed nonlinear differential equation 217

C.C. Grosjean
Deducing infinitely many mutually related sequences of orthogonal polynomials from solutions of first-order initial-value problems: An illustrative example 227

T. Jękot
Spectral methods for nonlinear thermostatic bimetal 251

L. Jódar
Closed-form solutions for boundary value coupled differential and difference systems 259

R. Klempous and J. Kotowski
Nonlinear transport network design 269

D.P. Laurie
Solving the inverse eigenvalue problem via the eigenvector matrix 277

A.V. Panyukov and B.V. Pelzwerger
Polynomial algorithms to finite Veber problem for a tree network 291

U. Steinacker, C. Leubner and S.L. Kalla
Uniform asymptotic expansions of a class of integrals with finite endpoints of integration on the same path of steepest descent and with nearby saddle points 297

M. Suri
On the robustness of the *h*- and *p*-versions of the finite-element method 303

B. Troff, T.H. Lê and Ta Phuoc Loc
A numerical method for the three-dimensional unsteady incompressible Navier–Stokes equations 311

J.-W. Zhang
A parametric study of pinched orthotropic cylindrical shells 319

List of papers presented at the congress 331

Author Index 335